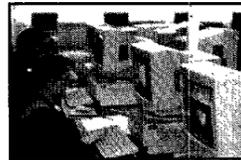




JSC scientists went to extremes last summer for space science. Story on Page 3.



Webster Intermediate students make Earth observations using the STS-81 crew and *Atlantis*. Story on Page 4.

# Space News Roundup

Vol. 36

January 17, 1997

No. 3



From left, Astronaut John Blaha welcomes STS-81 Mission Specialist Jerry Linenger and Commander Mike Baker aboard the Russian Mir Space Station on Tuesday after Baker and his crew successfully docked *Atlantis* to the station. Linenger became a Mir crew member at 3:45 a.m. CST Wednesday and will spend four months on the station while Blaha returns to Earth on *Atlantis* marking 188 days on Mir.

## Blaha's ride home arrives to Mir station

By Karen Schmidt

The STS-81 astronauts and Mir 22 cosmonauts came together late Tuesday as *Atlantis* made a picture perfect docking to begin joint operations between two nations.

John Blaha and his Mir 22 crew mates welcomed his fellow astronauts to the Russian space station Tuesday night after *Atlantis* docked at 9:55 p.m. CST as the two space craft streaked over Russia. Commander Mike Baker opened the hatch between the two space craft at 11:57 CST. The STS-81 crew was welcomed by Mir 22 Commander Valeri Korzun, Flight Engineer Alexander "Sasha" Kaleri and Blaha.

of docked operations.

"I was looking out the window this morning and picked up the shuttle about eight miles away," said Blaha. "It was a shining star that got bigger and bigger and the sun came up and bam you saw the shuttle and it was quite a beautiful sight."



Blaha and Mission Specialist Jerry Linenger exchange initial greetings in the orbiter docking module that links the two space craft together. Linenger became a Mir 22 crew member at 3:45 a.m. CST when his Soyuz seat liner was transferred to Mir and Blaha's taken onboard

*Atlantis* ending Blaha's stay on Mir after 118 days on the Russian outpost. As he explored the station Capcom Chris Hadfield asked, "How's home look?"

"It's looks great," said Linenger. "John looks good, everybody looks good and happy. I ate some bread already, taste delicious."

Earlier in the day Linenger was ask how his wife, Kathryn, was handling his trip to Mir and doing her part in training both himself and his replacement Mike Foale.

"It's her mission, too," he said. "When I'm over in Russia she's over there with me. As a matter of fact, she's still over in Russia, training the person who is going to come and take my place, Mike Foale. So I'm sure she's got a little extra motivation to get Mike ready

Please see **PHASE**, Page 4

## First '97 blood drive set for next week

President Bill Clinton has recognized January as National Volunteer Blood Donor month and JSC will kick off its first blood drive of 1997 next Tuesday and Wednesday.

"For millions of people across the country, the generosity of a volunteer blood donor means the difference between life and death," said Clinton in a letter to St. Luke's Hospital, JSC's blood donor program partner. "Donating blood is safe and quick taking only an hour out of the day. Through this simple process, donors can bestow on someone in need the precious gift of life."

Every year, the holidays put a great strain on the local blood supply.

Inclement weather, vacations and illnesses tend to decrease donor participation while the need for blood increases drastically. Local news programs have reported a critical shortage of blood in the Houston area. Donations are needed to help alleviate this shortage.

Employees wishing to donate can visit the Teague Auditorium anytime between 7:30 a.m.-3:30 p.m. on Tuesday and 8 a.m.-noon on Wednesday. Appointments are necessary only if employees plan on donating platelets or plasma, but no appointments are necessary for whole blood donations.

The previous three blood drives

have had record turnouts, and the center hopes to make this the best January drive ever. Employees are encouraged to "bring a buddy" if possible. All donors will receive a free T-shirt for their participation in this blood drive.

"I urge all my fellow Americans to consider donating blood," said Clinton. "Our participation in this compassionate crusade can help to prolong and save lives, giving hope to thousands of individuals and their families."

For more information about donating blood and future drives, call Dan Mangieri at x33003 or Amy Mendez at x2604.

## Norbraten, Remington to take on new roles

Last week, JSC Director George Abbey chose Lee Norbraten and Dan Remington to take on the responsibility of heading up their organizations.

Lee Norbraten has been named director of the ISO 9000 Project Office. He previously served as deputy director of that office. Norbraten replaces Charles Harlan who retired this month.

Norbraten will lead the transition from the current NASA Quality Management System to the internationally recognized ISO 9000 standards. The transition will include imposing ISO 9000 requirements on JSC contracts

and in-house organizations. Norbraten's office will be responsible for managing the complex certification process and evaluating the effectiveness of the implementation program.

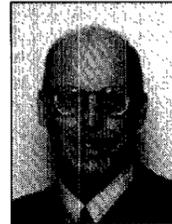


Norbraten

Prior to his assignment in the ISO 9000 Office, Norbraten served as a flight manager in the Space Shuttle Program Office, with the responsibility for the overall planning of specific shuttle missions, including the first International Space Station assembly mission. As the deputy manager of the Space Shuttle Systems Engineering Office, Norbraten developed the capability for the shuttle to update

ascent guidance commands on launch day based on observed wind conditions. Norbraten joined NASA in 1967, helping to design the return trajectories from the moon during the Apollo Program.

Dan Remington will serve as the acting chief counsel for the JSC Legal Office. He has worked as an attorney at JSC for 25 years. He has served as the assistant chief for general legal matters for the past nine years. Remington replaces Hank Flagg who retired this month.



Remington

He will be responsible for managing the office and providing in-depth legal support to

the center's activities, including any satellite installations. Key among his responsibilities are supporting the procurement function, administering the center's ethics program and providing representation in the various forms of litigation in which the center may be involved. He will provide advice and assistance to the JSC Director and organizational components in planning, directing and conducting center activities.

Remington joined NASA as an attorney advisor in 1971. He received his law degree from the University of Houston Law School in 1970.

## Thagard, Lucid donate space suits to Smithsonian

Former Astronaut Norman Thagard, the first American to ride aboard a Russian rocket when launched to the Russian Mir Space Station, and Astronaut Shannon Lucid, presented the space suits they wore on their flights to the Smithsonian Tuesday at the National Air and Space Museum.

A veteran of five space missions, Thagard was launched to Mir on a Russian Soyuz rocket on March 14, 1995. He returned to Earth on July 7, 1995 on *Atlantis* at the conclusion of the first shuttle/Mir docking mission. Thagard presented the sokol suit he wore during ascent in the Soyuz rocket to the Mir station.

"The future of space is one of international cooperation," Thagard said during the presentation. "If what I saw in my Mir/shuttle experience is true, it is a very bright future. I am thrilled to have this suit be given to the Smithsonian."

Shannon Lucid, who replaced Thagard aboard Mir and set a record for the longest spaceflight by an American, donated her penguin suit that was used to maintain muscle tone in her body.

"I am very glad that we have the opportunity to donate the penguin suit," said Lucid. "I hope that it will be a valuable contribution to the space exhibit."



Ice on trees around the center greeted employees upon their arrival at work on Monday. While the majority of Houston streets were covered in the slick stuff, roads around JSC were clear and employees reported to work as usual.

## Icy conditions greet workers Monday morning

Employees were greeted to an unusual sight around the center on Monday as freezing conditions left ice covering the majority of the vegetation around JSC.

"Work control was kept pretty busy Monday as they tried to keep pedestrians safe around the center," said Bill Roeh, chief of the Plant Engineering Division. "We experienced very few icy conditions on sidewalks and roadways and we were able to treat those conditions immediately upon discovery. Most of the ice was confined to vegetation

Please see **WORKERS**, Page 4

JSC Photo by Mark Sowa

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## Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For more information, call x35350 or x30990.

**Moody Gardens:** Tickets cost \$9.50 for 2 of 3 events.

**Loving Feelings Concert:** Johnny Rivers 8 p.m. Feb. 8 at the Arena Theater. Tickets cost \$34.50.

**Space Center Houston:** Adult \$8.95; children (4-11) \$6.40, annual membership \$25.95, family membership (up to four) \$59.95.

**Movie discounts:** General Cinema, \$4.75; AMC Theater, \$4.50; Sony Loew's Theater, \$4.75.

**JSC logo shirts:** Polo style cost \$23. T-shirt cost \$10.

**Franklin Planner refills:** now taking orders for 1997 calendars.

**Sweetwater pecans:** \$5.65 per pound.

**Stamps:** Book of 20, \$6.40.

**Entertainment '97 books:** Cost is \$25.

**Gold C Books:** Cost is \$10.

**Orbit:** The book *Orbit* by Jay Apt, Mike Helfert and Justin Wilkinson is on sale for \$28.

**Metro tickets:** Passes, books and single tickets available.

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## Gilruth Center News

**Sign up policy:** All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a yellow EAA badge. Classes tend to fill up two weeks in advance. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. For more information, call x30304.

**EAA badges:** Required for use of the Gilruth Center. Dependents and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday; and 9 a.m.-1 p.m. Saturdays. Cost is \$10. Dependents must be between 16 and 23 years old.

**Volleyball:** Spring registration is now underway until Jan. 17. Cost is \$175.

**Basketball:** Spring registration is now underway until Jan. 17. Cost is \$315.

**Hatha Yoga:** A stress relieving, stretching and breathing exercise routine to unite body, mind and spirit. Classes meet from 5:30-6:30 p.m. Thursdays. Cost is \$40 for eight weeks.

**Nutrition intervention program:** A six-week program to learn more about the role diet and nutrition plays in health, including lectures, private consultations with a dietitian and blood analysis. Program is open to all employees, contractors and spouses. For more information call Tammie Shaw at x32980.

**Defensive driving:** One-day course is offered once a month. Pre-registration required. Cost is \$25.

**Stamp club:** Meets at 7 p.m. every second and fourth Monday in Rm. 216.

**Weight safety:** Required course for employees wishing to use the weight room will be offered from 8-9:30 p.m. Jan. 28. Pre-registration is required. Cost is \$5.

**Exercise:** Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24 for six weeks.

**Aikido:** Martial arts class meets from 5:15-6:15 p.m. Tuesdays and Wednesdays. Cost is \$35 per month. New classes begin the first of each month.

**Aerobics:** Classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32 for eight weeks.

**Ballroom dancing:** Beginner classes meet from 7-8:15 p.m. Thursdays. Intermediate and advanced classes meet from 8:15-9:30 p.m. Cost is \$60 per couple.

**Country and Western dancing:** Beginner class meets 7-8:30 p.m. Monday. Advance class meets 8:30-10 p.m. Monday. Cost is \$20 per couple.

**Fitness program:** Health Related Fitness Program includes a medical examination screening and a 12-week individually prescribed exercise program. For more information call Larry Wier at x30301.

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## Dates & Data

### Today

**Cafeteria menu:** Special: baked meatloaf. Total Health: baked potato. Entrees: chicken fajitas, ham steak, pork and beef eggrolls, steamed fish, Reuben sandwich. Soup: seafood gumbo. Vegetables: stewed tomatoes, seasoned spinach, cut corn, macaroni and cheese.

### Monday

**Cafeteria menu:** Special: Italian outlet. Total Health: roast beef au jus. Entrees: chicken a la king, enchiladas with chili, vegetable lasagna, steamed pollock, French dip sandwich. Soup: split pea and ham. Vegetables: Brussels sprouts, oriental vegetables, buttered carrots, lima beans.

### Tuesday

**Cafeteria menu:** Special: stuffed cabbage rolls. Total Health: roasted turkey. Entrees: turkey and dressing, country style steak and hash browns, beef ravioli, baked chicken, fried cod fish. Soup: tomato Florentine. Vegetables: Italian blend, okra and tomatoes, corn cobbette, navy beans.

### Wednesday

**Spaceland Toastmasters meet:** The Spaceland Toastmasters will meet at 7 a.m. Jan. 22 at the House of Prayer Lutheran Church. For details call Jeannette Kirinich at x45752.

**Spaceteam Toastmasters meet:** The Spaceteam Toastmasters will meet at 11:30 a.m. Jan. 22 at United Space Alliance, 600 Gemini. For details call Pat Blackwell at 282-4302 or Ben Black at 282-4166.

**Astronomy seminar:** The JSC Astronomy Seminar will be held at noon Jan. 22 in Bldg. 31 Rm. 129. An open discussion meeting is planned. For details call Al Jackson at x35037.

**Cafeteria menu:** Special: pepper steak. Total Health: stir fry pork with rice. Entrees: liver and onions, stir fry pork with rice, steamed fish, western special, Reuben sandwich. Vegetables: steamed broccoli, yellow squash, macaroni and cheese, vegetable sticks.

### Thursday

**AIAA meets:** The American Institute of Aeronautics and Astronautics will meet at 5:15 p.m. Jan. 23 at the Gilruth Center. Richard Martin will discuss "The Atlas Rocket-It Just Keeps Going and Going." For details call Pam Sisk at x38341.

**Rodeo tickets:** The Employee Activities Association will hand out numbers at 7 a.m. Jan. 23 at the Exchange Store for the purchase of Houston Livestock Show and Rodeo tickets. Tickets cost \$10 and are limited to four tickets per badged employee. For more information call Valerie Marburger at x34214.

**Cafeteria menu:** Special: chicken fried steak. Total Health: baked potato. Entrees: beef tacos, steamed pollock, baked chicken, catfish special. Soup: navy bean. Vegetables: spinach, cut corn, breaded okra, pinto beans.

### Friday

**Reservations due:** The Clear Lake Club of Sigma Xi, the Scientific Research Society will meet at 6 p.m. Jan. 30 in the Forest Room located on the first floor of the Bayou Bldg. at the University of Houston Clear Lake. Sidney Burrus will discuss "Wavelet Technology." Optional dinner tickets cost \$9 for members and \$10 for nonmembers and reservations are due Jan. 24. For details call Mike Duke at 244-2036.

**Cafeteria menu:** Special: tuna noodle casserole. Total Health: baked potato. Entrees: steamed

salmon steak, baked chicken, fried cod fish, ham steak. Soup: seafood gumbo. Vegetables: French cut green beans, green peas, cauliflower with cheese, black-eyed peas.

### Jan. 29

**Astronomy seminar:** The JSC Astronomy Seminar will be held at noon Jan. 15 in Bldg. 31 Rm. 129. Dave Kaplan will discuss "Mars Sample Return Mission Design. For more information call Al Jackson at x35037.

### Feb. 6

**Warning system test:** The sit-wide Employee Warning System will undergo its monthly audio test at noon Feb. 6. For details call Bob Gaffney at x34249.

### Feb. 11

**NPMA meets:** The National Property Management Association will meet at 5 p.m. Feb. 11 at Robinette and Doyle Caterers, 216 Kirby in Seabrook. Social and dinner cost \$14. For details call Sina Hawsey at x36582.

### Feb. 12

**MAES meets:** The Society of Mexican American Engineers and Scientists will meet at 11:30 p.m. Feb. 12 in the Bldg. 3 cafeteria. For details call G.D. Valle at x38835.

**PSI meets:** The Clear Lake/NASA Chapter of Professional Secretaries International will meet at 5:30 p.m. Feb. 12 at the Holiday Inn, NASA Road 1. Dinner costs \$12. For details call Elaine Kemp at x30556.

### Feb. 13

**Airplane club meets:** The Radio Control Airplane Club will meet at 7:30 p.m. Feb. 13 at Clear Lake Park Community Bldg. For details call Bill Langdoc at x35970.

## Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP2, or deliver them to the deposite box outside Rm. 181 in Bldg. 2. No phone or fax ads accepted.

### Property

Sale: Friendswood, Heritage Park 3-2-2, ex cond, security system, ceramic tiles, \$81.9k. 996-0152.

Sale: Clear Lake Forest 3-2-2 on 3/4 ac wooded lot, new roof, remodeled kitchen, sprinkler system, zoned air, \$141k. 281-326-2557.

Galveston condo, furnished, sleeps 6, Seawall Blvd and 61st St, swimming pools, cable TV, wknd/wkly/dly rates. Magdi Yassa, 333-4760 or 486-0788.

### Cars & Trucks

'84 VW Scirocco, bronze, good cond, 5 spd, 104k mi, \$1.2k. 280-0415.

'94 Saturn SC2, 2 dr, gold, ex cond, 21k mi, 5 spd std, A/C, P/S, AM/FM/cass w/upgraded spkrs, \$13k. Dan, x30764 or 334-5270.

'88 Honda Accord LX, 4 dr, 5 spd, A/C, tinted glass, AM/FM, gold, 119.7k mi, \$3.5k obo. x30784 or 480-1753.

'83 Silver Mercedes 380SL, 107k mi, \$13.2k. 281-326-2557.

'94 Ford ranger XLT extended cab, red, 3.0L, 5 spd, A/C, AM/FM/ cass, cruise, tilt wheel, 37k mi, \$9k. 486-6152.

'86 Chevy Caprice, loaded, ex cond, silver w/blk vinyl top, \$3.5k. x32889 or 472-8927.

'79 Corvette, 350 cu in, auto, glass T-tops, new interior, new radiator, 50k mi. \$5.5k. Ray, 281-326-1862.

'93 Chevy Camaro Z-28, 6 spd, ex cond, warranty, 47k mi, CD, power locks, seat and windows, cruise, custom wheels, black, \$13.3k. x34544 or 326-3759.

'87 Buick Century Limited, 4 cyl, new dealer paint job, 100k mi, AM/FM/cass, power windows, ex cond, \$3.3k. x33122 or 482-1348.

'85 Toyota Cressida, 81k, all power and options, metallic grey w/matching leather interior, \$2.8k. 281-333-3425.

'85 Audi 4000S, 4 dr, silver, velour interior, A/C, AM/FM/cass, approx 60k mi, well maintained, \$3.5k obo. Bobby, 244-2444 or 488-4382.

'92 Honda Accord LX, metallic red, gray interior, 4 dr, auto, AM/FM/cass, ex cond, 111k mi, \$7.8k. 334-2533.

### Boats & Planes

'88 Sea Ray Seville 18 ft bowrider, 130 hp I/O, pwr trim/tilt, pwr steering, steel speed prop, swim platforms, bimini top, AM/FM stereo, under seat cooler, lots of storage space, galvanized trailer w/removable tongue for easy stowage in garage, includes pair of skis, tow rope, and Coast Guard vests, \$6.9k. 326-5646.

Aluminum 21-inch prop off Mercruiser I/O 135 Hp engine, \$50; tire w/rim for boat trailer, unused, \$50. Robert, x37739.

### Audiovisual & Computers

Mac Powerbook 170 laptop, 8/13 MB RAM, 200 MB Powerdrive, 68030/25 w/68882 co-roc, 10" AM B&W screen, 14.4 modem, Sys 7.0.1, Word 5, Excel 4, \$750. Bill, x31985.

JVC Model 7600MS multistandard VCR, NTSC/ PAL/SECAM, 110/220/240V, 50/60Hz, \$190. 281-480-6578.

Pioneer KEH-M7500 car radio/cassette deck, detachable face, CD changer controls, \$150 obo. Lisa, x40213 or 992-7302.

486/DX2-66 computer system, 20 MB RAM, 540 MB HD, 33.6 fax/modem, 4X CD ROM, Win 95, MS Office, and other S/W, 14" .28 dp monitor, 16 bit stereo sound, \$825 nego. Steve, 480-6415.

Motherboard, 486 DX-2/66 w/8 MB RAM, 256k cache, VESA bus, \$75; memory, two 72-pin 4 MB EDO SIMMs, \$20 ea or \$35 for pair. Jeff, x38424 or 281-992-9571.

Signature VCR, intermittent ejection problem, \$20 obo. x38019. Panasonic VHS camcorder, w/hard

carrying case and clip on light, \$200 obo. x39461 or 713-729-2006.

Mac Powerbook 180C active-matrix notebook computer, 8 MB RAM, 160 MB HD, new battery, fpu, ac adapter, charger, carrying case, S/W, \$725; Apple 14" A/V monitor with/built in speakers, .28 dp, works w/PR or Mac, \$225. Bobby, 244-2444 or 488-4382.

### Musical Instruments

Fender Blues DeVille guitar amplifier, 60W, tube powered, four 10" speakers, channel switching, effects loop, footswitch, \$425. Chuck, x45093.

Alto saxophone, YAS-62 professional model, \$950. Vincent, x33489 or 713-850-9768.

### Photographic

Durst M600 enlarger and other dark room accessories, \$50. Ray, x31484 or 281-280-8563.

### Pets & Livestock

Mini-Rex rabbits, \$10 ea. 482-0874.

### Lost & Found

Lost: dog, small, thin, cream colored, med long semi-shaggy hair, male, Pomeranian mix, frightens easily, very timid. Last seen in Bay Glen and Bay Oaks on 12-10-96, reward. 480-8101 x509 or 486-9605.

### Household

Bedroom set, full size, antique green, w/dresser, 5 drawer chest and 2 night stands, Italian design, good cond, \$850. Magdi Yassa, 333-4760 or 486-0788.

Sectional sofa, dual recliner, light blue fabric, some wear, \$150. x33146.

Dining table, \$100. 482-0874. Electric washer and dryer, both working, \$100 for both. 482-0874.

Queen style sofa, 80" long, floral pattern on ivory background w/walnut wood trim, ex cond, \$100 obo. 486-4118.

Large used 5 piece sectional sofa, \$75 obo. Mike, 244-0043 or 532-1946.

Three piece BR set w/box spring, cherry, \$150; unused 32" insulated French door, \$75; insulated 3' x 6' window, \$50. x30189 or 333-2482.

Living room chair, golden harvest color, swivels and rocks, \$30 obo. Lisa, x40213 or 992-7302.

Super single waterbed, \$100 obo. 488-5416.

Full size comforter, shams and curtains, ex cond, purple/black/silver, \$100 firm. Annie Cresap, x30947 or 478-4033.

### Wanted

Want non-smoking roommate to share large 3 BR home in Clear Lake area, \$375/mo bills paid. John, x30543 or 286-7384.

Want individuals interested in square dancing to start class w/The Shuttlebugs on Friday nights starting 1/10 or 1/17/97. 554-7757 or 488-7509.

Want greenhouse for backyard, complete or frame only, good cond. Amanda, 486-9605.

Want personnel to join VPSI Vanpool, depart South Braeswood Park & Ride at 6:50 a.m. for JSC and offsite locations, 7:30 a.m. - 4:30 p.m. shift. Susan Gaynor, 282-5447 or Al Ruder, x34997.

Want 13 yr old boys for baseball team. 334-2533.

Want home or condo, no approval assumption and/or owner finance, any condition. 482-0874.

Want female roommate to share 4 BR house, \$275/mo all bills included. Theresa, 244-5089 or 480-6980.

Want non-smoking female to share new 4-2 house, near South Shore Harbour, w/same, cable, W/D, sec sys, garage, all house privileges, large deck w/grill, no children/pets, \$500/mo includes utilities except phone. Pam, 281-334-0833.

Want headset(s) for general aviation aircraft use. Warren, x34204 or 480-2954.

Want non-smoking housemate to share 3 BR, 4k sq ft, waterfront home on Taylor Lake, pool, boat dock, hot tub, own furnished bedroom and bath, \$600/mo bills paid. Leah, x34544 or 326-3759.

Want one roommate to share 3-2.5-2 University Green townhome, just north of JSC, cable, W/D. Scott, 286-7808.

Want roommate for 2 BR 2 bath apartment, Clear Lake area, full size W/D, amenities, ready to move in Feb/Mar, \$387.50 plus 1/2 utilities, 281-333-6280 or 281-286-5639.

### Miscellaneous

Diamond/10 Kt Gold nugget ring, \$125. Marquise opal ring, \$75. Gail x32009

Body tech home gym, like new, 4 stations, dual stack, \$399 obo. 482-9576.

Schwinn Air-Dyne exercise bike, ex cond, low mileage, \$395. x33146.

'68 Camaro driver's door and both front fenders, back glass for '75-'81 Camaro/Firebird. 337-4134.

Utility trailer, approx 4' x 8' light weight, ex cond, \$200; tow bar and mounting bracket, \$100. Grady, 485-4592.

Router, 2 hp, 1/2" B&D no. 3320, wrenches, 1/4" and 3/8" collets, edge guide, manual, unused, \$80. Tom Clark, 244-9842.

Two 2-drawer legal file cabinets, \$40 ea; 2 110V A/Cs, \$90 ea; Dearborne propane heater, \$90; computer desk, \$25; child seat, \$40. Ken, x30921.

Kelty child carrier back pack, \$55; Century Fold-N-Go travel crib and playard, navy blue, \$35; Bell brand child's bike helmet, sz S/M, \$10. Diane, x35266 or 280-0613.

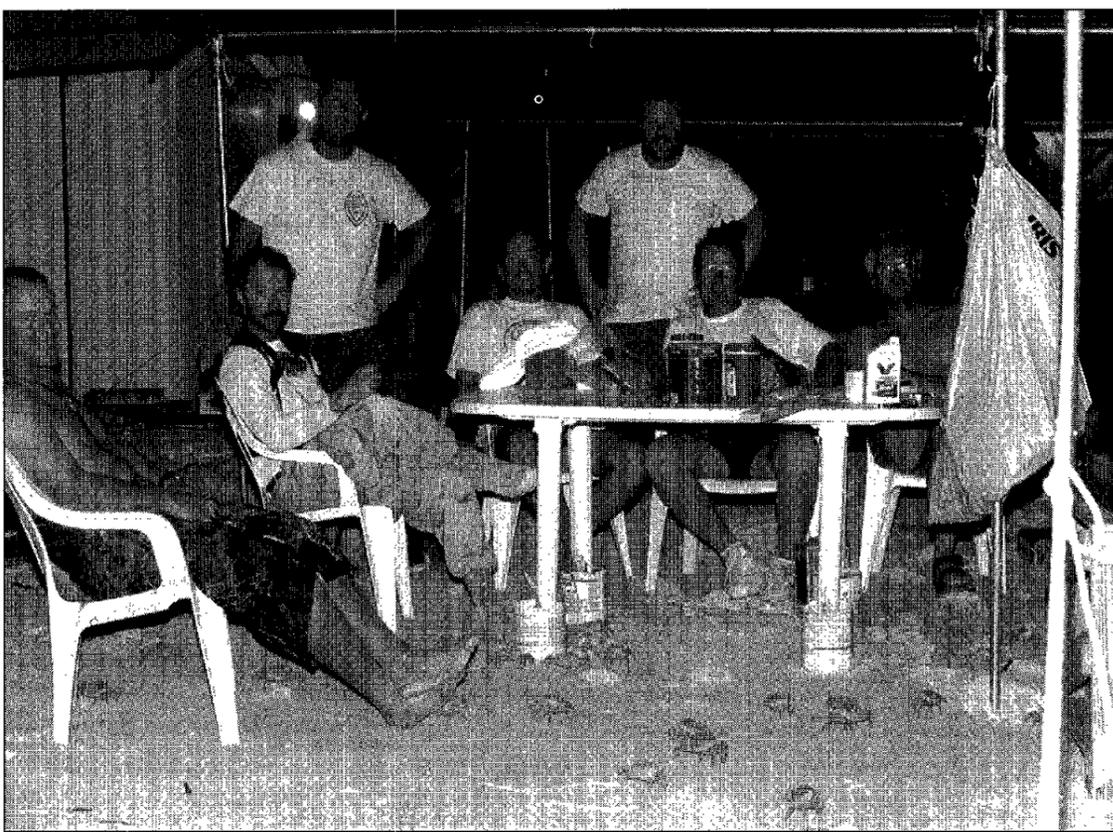
One pair alloy rims w/new tires for '88-'95 Chevy truck, \$300; one pair rear view mirrors for '88-'95 Chevy truck, \$40. 998-2293.

Aquarium w/metal stand and accessories, \$50; rocking chair, \$25; exercise bike w/monitor, \$175 obo. 332-9094.

Softball bats, Easton 32 oz, \$25; Easton 35 oz, \$20; Worth 32 oz, \$15; Bombat 30 oz, \$10; or \$60 for all. Bob, x33057 or 538-3431.

Montgomery Wards front tine tiller, 5 hp Briggs & Stratton engine, \$125. Jim Lindsay, 333-7495 or 482-9116.

The radar team takes time out from construction duties with the Clipperton island inhabitants, red crabs. The team spent more than six weeks in the Pacific installing a temporary radar system to observe the re-entry of the Ariane 5 booster for the French Space Agency. From left are, medic Sgt. Pat Kern, Freeman Bertrand of Lockheed-Martin, survival expert Sgt. "Bunky" Hill, Jeff DeTroye of the Space Science Branch, Greg McCaskill, Greg Sherrill and Bob Simle of Lockheed-Martin.



Photos by Clipperton team

# Remote Radar

## JSC team goes to extreme ends to conduct science

By Karen Schmidt

Generally, JSC engineers sit at comfortable air-conditioned desks and develop engineering strategies from computers. Last summer, five of these engineers took on the challenge of conducting a radar observation mission with a transportable radar system on a remote atoll in the Pacific. Instead of air-conditioning, they found 100-degree-plus temperatures. Instead of waxed tile floors, they found a never-ending sea of tiny red crabs at their feet. And instead of using their computer mouse-moving muscles, they found lifting barges and toting bales. In November 1994, the French Space Agency asked NASA to conduct a fully reimbursable project to help track the first stage break up of the newly designed Ariane 5 rocket. Last summer, Jeff DeTroye of the Space Science Branch along with Freeman Bertrand, Greg McCaskill, Greg Sherrill and Bob Simle of Lockheed Martin, spent more than 30 days on Clipperton Island—an uninhabited 3 by 5 kilometer ring-shaped coral atoll 1,600 miles south of San Diego—preparing to track the rocket's first stage re-entry after launch. The engineers also took along survival expert Sgt. Arthur Hill and Independent Duty Medical Corpsman Sgt. Pat Kern from the U.S. Air Force Survival School at Fairchild AFB in Washington.

During the almost seven-week expedition that began April 27, the team endured an eight-day voyage in cramped quarters, a water spout that seemed to make a bee-line for the supply ship and the camp on shore, extreme heat (up to 120 degrees), frequent rain squalls with 30-40 knot winds, and managed to learn to live with the inhabitants of the island—red crabs.

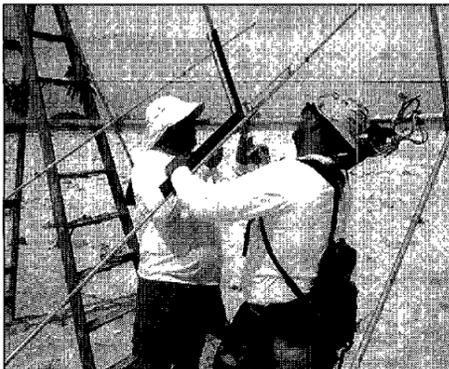
"This island is incredibly remote," DeTroye said. "After the fifth day of the voyage, we didn't see any other ships or aircraft—even on our ship's radar. There are no people on the island, no fresh water, few trees—just a lot of sand. Ships can't get into the lagoon, so the only way on and off the island was through the surf in small rubber boats.

"On the second day on the island a huge water spout (a tornado on the water) came within a half mile of our camp and the boat had to pull anchor and leave us," DeTroye said. "Later that day, looking around at the team, I thought: This is a bunch of office workers and here I was expecting them to literally cart tons of equipment

uphill through deep sand in weather worse than Houston in July. The weather guys were warning us that tropical storms could form over us at any time, water spouts seemed to be attracted to our camp, and we had at least four weeks of this to look forward to. I was really proud of the way the team dug in and got the hard, physical work done, overcame the environment, got the radar up, got it operating and then got it all back off the island."

Learning how to work on the island during the 46-day expedition turned out to be one of the more important factors of the mission. Upon arrival at Clipperton, the team spent two days unloading the approximately 14 tons of equipment and camp provisions by barge to the beach.

"The equipment barge was a surplus U. S. Army four-pontoon inflatable bridge," DeTroye said. "The equipment transfer operation was hard physical labor. First, the barge had to be pulled through the surf to the beach. Then every item had to be lifted down from the barge and then carried a minimum of 20-30 yards up a sloped, soft sand beach. By the second day, 'barge ops' was a dirty word around camp."



During the transfer of equipment and while trying to set up camp, daytime temperatures often exceeded 100 degrees. For safety reasons, barge operations had to occur during the day, but part of the team was able to work on the radar at night to

avoid the heat until the air-conditioning system was complete in the huts the team constructed. Prior to the mission, the team worked out elaborate plans to keep the island inhabitants, red crabs about the size of a man's hand, away from the radar and power system. The crabs were everywhere on the island and it was thought that they would be able to eat anything.

"The crabs turned out to be not a difficult problem to control," DeTroye said. "The were always under foot, but were not aggressive and could easily be kept out of areas where they were not wanted. After a while we got so used to them that we didn't think twice about going barefoot. They would nibble on your toes though, if you weren't paying attention—like when you were taking a shower."

The periodic heavy surf contributed to the difficult task of transferring equipment and when the weather turned the seas choppy, the support ship could not deliver food, fuel or water to the team. The team ate military rations during these periods.

"At first it was interesting, but after a few days,

the MREs really lost their appeal," Detroye said. Early in the mission, before the storage system was fully set up, water and fuel ran low on the island when the surf made access to the beach from the supply ship impossible.

"Just as in any space mission, preparation and training were the keys to success," DeTroye said. "We had help in getting ready for this mission from people in the Center Operations Directorate, Engineering, Safety, Mission Operations and from all over JSC. We had recognized that moving 28,000 pounds of equipment through the surf in rubber boats was not going to be a trivial task. A group of ex-Navy SEALs taught us how to penetrate the surf and helped work out the barge transfer system. We also had Don Frank, a Lockheed-Martin weatherman, working with the National Hurricane Center evaluating the weather situation for us. Another area we spent quite a lot of time on was medical support. We were a minimum of three days from the nearest hospital, and that was in Mexico. The people here at the JSC Clinic, particularly Dr. Yvonne Cagle and Nurse Lynn Hogan, gave us tremendous support in working out what injuries we should be prepared to treat."

The USAF provided an experienced medic to the team, Sgt. Kern. He quickly gained the confidence of team members and everyone felt comfortable taking problems to him.

"Overall the health of the team was excellent," Detroye said. "Despite the heat, there were no cases of heat exhaustion or significant dehydration."

Set up of camp could not have been accomplished without survival expert "Bunky" Hill. His background in remote deployments, knowledge of camp organization and even simple things like knots made the campsite much more livable.

"Sgts. Hill and Kern probably performed 60 percent of the work in landing the equipment on the beach during the first few days," Detroye said. "They were in far better shape than most of the NASA team and were used to working in the type of remote conditions encountered on the island."

After 28 days on the island, the team had established camp and completed radar setup, two days before the Ariane 501 was scheduled to launch. The team kept close watch on radar and support equipment, but still encountered problems with sand and contaminated fuel for the generators.

With two days left before launch and the work done, the team had a chance to explore the small island. The island is French territory, so there are several memorials to various visits of French warships or French Foreign Legion units. During World War II, there had been a U.S. Navy installation on the island, across the lagoon from the temporary NASA radar site. At some point, the Navy had established a dump of ammunition about 600 yards from the NASA site.

"The ammo was still there," Detroye said. "There were a lot of shells that had obviously self detonated, probably during some storm after the Navy left at the end of World War II—it must have been very exciting for the birds and crabs."

The team spent some of their scarce free time looking for vintage WWII Coca-Cola bottles the Navy had left behind.

On June 4 the French Space Agency launched the Ariane 5 rocket. After about 40 seconds into the flight sequence, the booster veered off, broke up and exploded. An inquiry board would later blame the flight control and guidance systems for the loss of the Ariane 5.

"The French Space Agency felt pretty bad that we had spent a month on Clipperton getting ready for the observation and it all came to nothing," Detroye said. "They made it pretty clear to us that they really appreciated our efforts."

It took only two days to pack up equipment, transfer it back to the ship, clean up the camp and weigh anchor back to San Diego.

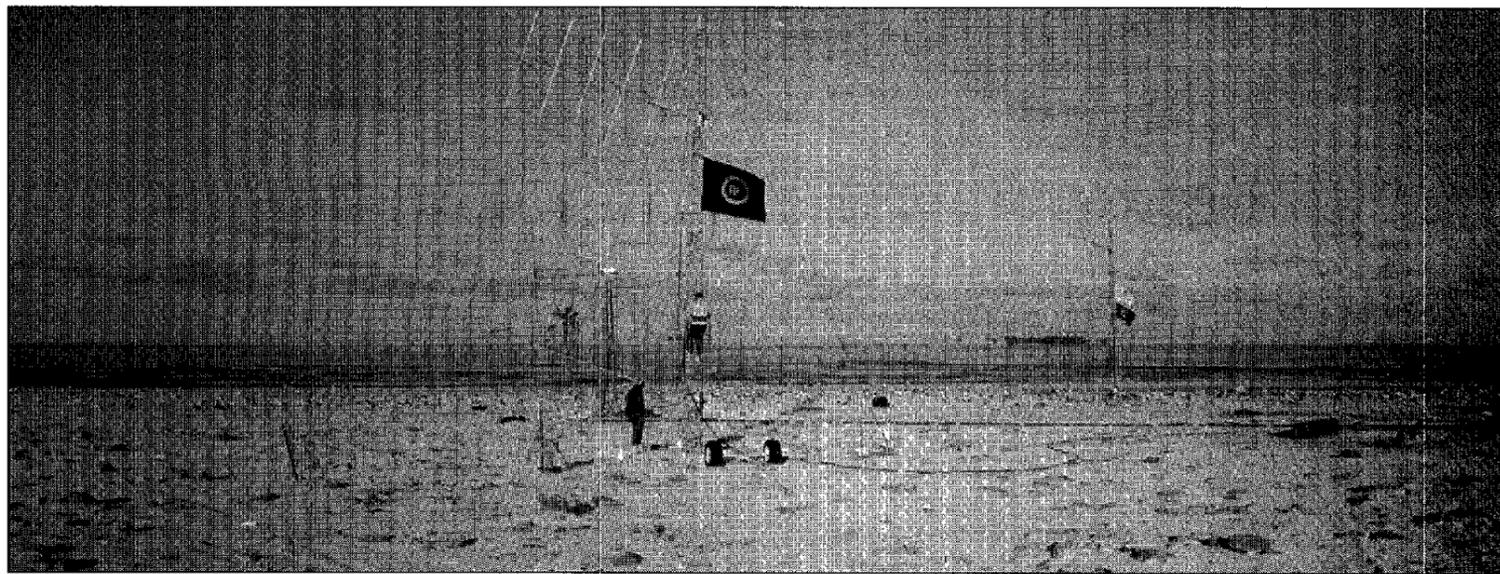
"We were very motivated to get off the island and on our way back home," Detroye said. After 46 days away from the American coast, the crew returned to San Diego on June 11 with a stack of lessons learned for the next transportable radar system mission.

"While no data was collected due to the Ariane 5 failure, the NASA campaign was a complete success," Detroye said. "The radar and all its associated equipment was operational on launch day, no one was seriously hurt, and all the radar equipment was returned to JSC without significant damage."

The French Space Agency has recently asked NASA to arrange an observation of the reentry of the first stage of the next Ariane 5 mission. "Unfortunately the trajectory is different, so we won't be going back to Clipperton" Detroye said with a smile. □



Center left, from left, McCaskill and Hill build one of the three radar antennas. Each antenna was mounted on its own concrete base and precisely aligned to observe a selected portion of the horizon. Center right, from left, Hill and Bertrand perform maintenance on the messenger line that carried supplies from the supply ship to the island team. The messenger was used to pull the barge to and from the beach. Bottom, Hill assists Sherrill in final adjustments of the radar antenna elements, that bears a NASA flag, just prior to launch of the booster. The team also raised the European Space Agency and French Space Agency flags in support of the mission. Clipperton Island is an atoll with a lagoon of brackish water and green slime. In the distance is a clump of tress where the team found remains of a World War II U. S. Navy camp.



# Science teams receive recognition

Roger Billica, chief of the Medical Operations Branch presented three Certificate of Achievement Awards to the Water and Food Analytical Laboratory staff last month for their support of the shuttle/Mir missions and Early Human Testing Initiative.

Team members including John Schultz, Sandy Carr, Lydia Ding, Mark Homan, Stephanie Jackson, Mike Kuo, Jose Limardo, Paul Mudgett, Liz Pierre, Debrah Plumlee, Jeff Rutz, John Straub, Judy Svoboda, Richard Sauer and Curt Wiederhoeft were recognized for the development skills and support of JSC's Mir and regenerative life support mission.

Scientist Paul Mudgett and his team, were recognized for their key role in developing and supplying the hardware needed to transfer water from the shuttle to Mir. Senior Chemist Mark Homan and his team were recognized for their outstanding support provided to the Mir

Water Collection and Analysis project resulting in successful return of over 30 Mir water samples from STS-71, STS-74 and STS-79.

Engineer Liz Pierre and her team members received recognition for their technical and analytical support of the Early Human Testing Initiative Phase II Test, including the 30-day manned test.

## Secretaries earn top honors

Two secretaries recently earned the Marilyn J. Bocking Award for secretarial excellence.

Karen Kraak of the Systems division in the Mission Operations Directorate was recognized for her enthusiasm, dedication and persistence in taking on new responsibilities and completing tasks that make her office environ-



Mudgett



Homan



Pierre



Kraak



Haefner



Burbank

ment a safer place to work. She was cited for her efficiency and accuracy in handling two branch offices as well as her willingness to support others near her office that have no secretary.

Claranita Haefner of the Space Shuttle Business Management Office was recognized for her excellent self-motivation, anticipation and dedication to the organization's objectives and goals.

Her personal dedication, professionalism, team player attitude and vast knowledge of the space shuttle program make her an invaluable member of the space shuttle team.

## Burbank dies

Former NASA employee Paige Burbank died last month after a lengthy illness.

Burbank joined the National Advisory Committee for Aeronautics in 1948 at Langley Research Center. At Langley he was assigned to the Unitary Wind Tunnel where he was involved in pioneering research in the field of supersonic aerodynamic heating.

His work involved fundamental research of basic theory and experimental verification. As a part of his work he investigated the effects of protuberance heating and the resulting Technical Notes are still used in universities and industry as the foundation for this area. He also was responsible for the conduct and

analysis of detailed heating and pressure distribution investigations of the then secret SR-71 and the NACA X-15 aircraft.

Burbank transferred to the Space Task Group and was in the initial group that moved to Houston to establish the Manned Spacecraft Center. In the Engineering Directorate he was responsible for the Light Gas Gun and did exploratory research on hypersonic impacts. He transferred to the Space Shuttle Program Office and was involved in the shuttle performance capability.

Burbank retired from NASA in 1980 and was later employed by Rockwell International where he continued his contributions to the Space Shuttle Program.

## People

### February is rodeo month

## Rodeo tickets go on sale next week

The Employees Activity Association will begin selling Houston Livestock Show and Rodeo tickets Thursday at the Exchange Store.

The EAA will pass out numbers to employees at 7 a.m. Thursday for Rodeo tickets. Tickets cost \$10 and badged employees are limited to four tickets each. The Exchange Store also will sell carnival packages for \$10.

A limited number of tickets are available for the following performances:

- 7 p.m. Feb. 14, Alan Jackson and LeAnn Rimes;
- 7 p.m. Feb. 15, Collin Raye, Trace Adkins, and Gary Allen;
- 4 p.m. Feb. 16, Tim McGraw and Chris LeDoux;
- 7 p.m. Feb. 17 and 18, George Strait;
- 7 p.m. Feb. 19 and 20, Brooks and Dunn;
- 7 p.m. Feb. 21, Mary Chapin Carpenter, Patty Loveless and Kathy Mattea;
- 11 a.m. Feb. 22, Earth, Wind and Fire;
- 7 p.m. Feb. 22, Tracy Lawrence and Rick Trevino;
- 4 p.m. Feb. 23, Emilio and Grupo Limite;
- 7 p.m. Feb. 24, Clay Walker;
- 7 p.m. Feb. 25 and 26, Reba McEntire;
- 7 p.m. Feb. 27, Wynonna;
- 7 p.m. Feb. 28, Hank Williams, Jr., Charlie Daniels, Marshall Tucker Band and Bo Diddley;
- 7 p.m. March 1, Mark Chesnutt and Terri Clark;
- 4 p.m. March 2, Vince Gill.

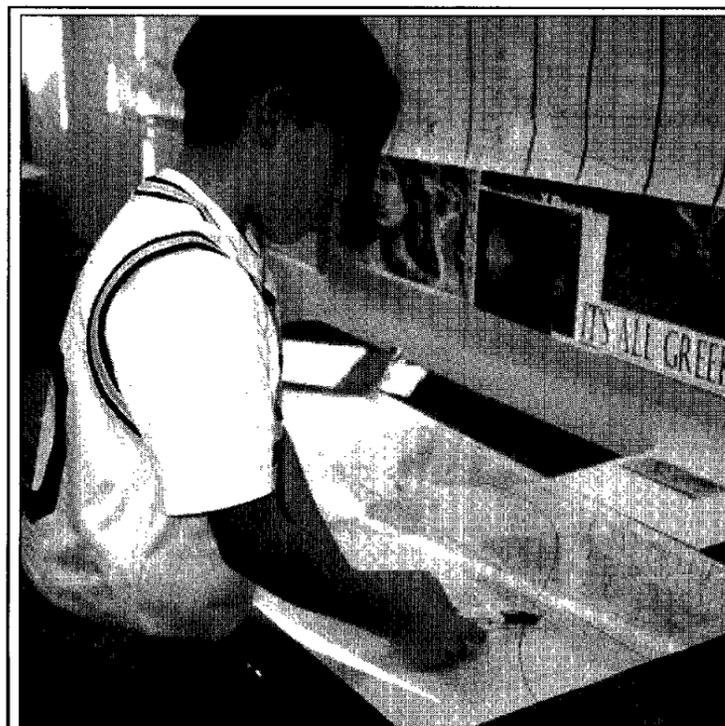
For more information, call Valerie Marburger x34214.

## Workers should use information lines for updates

Continued from Page 1

but we did have some branches that were broken because of the weight of the ice."

When weather conditions exist, employees are urged to call information lines and not call the JSC Emergency Operations Center for weather updates and the status of the center. Employees can monitor conditions at JSC by calling the Employee Information Line at x36765 or Emergency Information Line at x33351. If the center should close due to weather conditions, the media is notified so they may report whether employees should report to work.



Webster Intermediate School students gear up for the STS-81 mission by participating in simulations. Above, Nathan Paloski checks the orbit ground tracking chart to pinpoint locations. Students request photos by giving latitude, longitude and times. Right, Amber Kuhn and Michael Loh transmit photo requests to undergraduate and high school students who verify and send them to flight controllers in Mission Control at JSC.



## Kidsat brings space shuttle experience to classrooms

STS-81 is supporting the second flight of KidSat, NASA's pilot education program that uses an electronic still camera aboard the shuttle to bring the frontiers of space exploration to 15 U.S. middle school classrooms via the Internet.

Webster Intermediate School is one of the 15 KidSat sites actively participating in site selection for the electronic still imagery. Webster teachers Kim Bennett and Kaylynn Burns and 30 students have been preparing since September.

"Our students functioned as a flight control team here at the school during the sims. We're really looking forward to working with the kids during the actual mission," said Bennett.

The teachers used a 15-chapter teachers' guide taking students through a series of activities designed to hone their skills in map reading, plotting the shuttle's ground track and choosing geographic features to photograph during the flight. The students participated in two preflight simulations with the University of California at San Diego control center and the Jet Propulsion Laboratory in December.

During the mission, the KidSat mission operations at UCSD will be staffed by undergraduate and high school students. The center is modeled after Mission Control at JSC. The students receive telemetry from the shuttle on their computers and listen to and receive instructions from flight controllers at JSC.

The KidSat mission team monitors the shuttle's progress around

the clock and continually provides up-to-date information to the middle schools, who are using the Internet to send instructions to photograph specific regions of the Earth. Since changes in the shuttle's orbit can affect selections, UCSD constantly updates this information so that the schools may re-plan their requests. This is done through a sophisticated World Wide Web site that allows students access to interactive maps of orbit ground tracks.

When the image requests have been verified by KidSat mission operations, they are compiled into a single camera control file and forwarded electronically to the KidSat representatives at JSC. They pass this file on to flight controllers who uplink it to an IBM Thinkpad connected to the camera. Software on the Thinkpad, developed by students working at JPL, uses commands to control the camera. These same students trained astronauts on the use of the software and installation of the camera.

After the photographs are taken, they are sent down to a data system at JPL, staffed by high school students during the mission and posted on the World Wide Web for the students to study and analyze.

Some of the topics the students explored during the first KidSat mission were weather, biomes, the relationship between history and geography and the patterns of rivers on the landscape. Images and student results are posted at: <http://www.jpl.nasa.gov/kidsat>

## Phase 1 manager praises ground orbit teams

Continued from Page 1

so that he gets up there and brings me back in time for our next child's birth."

For five days the Mir cosmonauts and *Atlantis* astronauts will work together to transfer more than 6,000 pounds of water, experiments and logistics items. Blaha will spend time briefing Linenger on Mir systems and experiments in work.

Linenger said that he hopes to expand the research done and his knowledge of the Earth during his time on Mir.

"The experiments I'm doing are redesigned and new experiments," he said. "We're taking up a lot of new hardware, so there will be some new things along those lines. As a physician I think I'm going to be a little bit more attuned to some of the physiological changes that take place. Hopefully, I'll be able to observe that a bit more closely. My goal in life is to become a real good geographer, to the point where I can peek out a window and pick out

where I'm flying over Earth, so I've got a unique perspective and adequate time to train as a geographer."

Phase 1 Program Manager Frank Culbertson praised both the ground, shuttle and Mir crews for a successful docking during an early morning briefing Wednesday.

"A lot of times we end up with drama associated with these docking missions and it gets a lot of interest if we are working problems like jets or whatever, and without that, people may think missions are routine or that they're easy," he said.

"Even without the publicity of some problem we are working, there is a lot of drama. Those who are involved in it such as the mission control teams and the crew members know that very well. There is plenty of drama to be had as you do your job and if you do it well, it doesn't appear to be so, but once again there was lots of tension and anticipation as we went through this one and a lot of good solid hard work on the part of

everybody both in preparation and in execution to make this happen.

"The teams are making it look easy, but it is still not an easy task to bring two 100 ton vehicles together going 18,000 miles per hour and do it as precisely and as gently as it has been done as well as to execute the transfers that are occurring as smoothly as they are. They worked very hard to make it look easy, but it was not and I take my hats off to all the teams involved," said Culbertson.

Rendezvous and docking went smoothly as Baker and his crew kept well within constraints set by the ground team.

"All the burns were exactly on time," said Bob Castle, mission operations representative. "All of the navigation performance and everything through the rendezvous and the approach was flawless. Contact conditions were excellent, well within what we aimed for."

*Atlantis*' trip to Mir began as well as the docking operations. The

shuttle lifted off from Kennedy Space Center's Launch Pad 39B at 3:27 a.m. CST and the crew spent the first few days preparing for the transfer of supplies to Mir.

"It was a great countdown, no problems whatsoever during ascent," said Baker during an interview early Tuesday. "The only thing I can think of is that this is an airplane and the more you fly them, the better they work. If we keep flying *Atlantis* like we've been doing hopefully it will keep working better and better."

*Atlantis* is expected to undock with the Mir station taking Blaha and leaving Linenger at 8:12 p.m. on Sunday. *Atlantis* will return to KSC's Shuttle Landing Facility at 6:57 a.m. CST on Wednesday.

Linenger will remain on the Russian station until May when the crew of STS-84 will pick him up and leave Astronaut Mike Foale. During his tour on Mir, Linenger will conduct a space walk—a first for an American in a Russian space suit.